Northeastern Area State & Private Forestry

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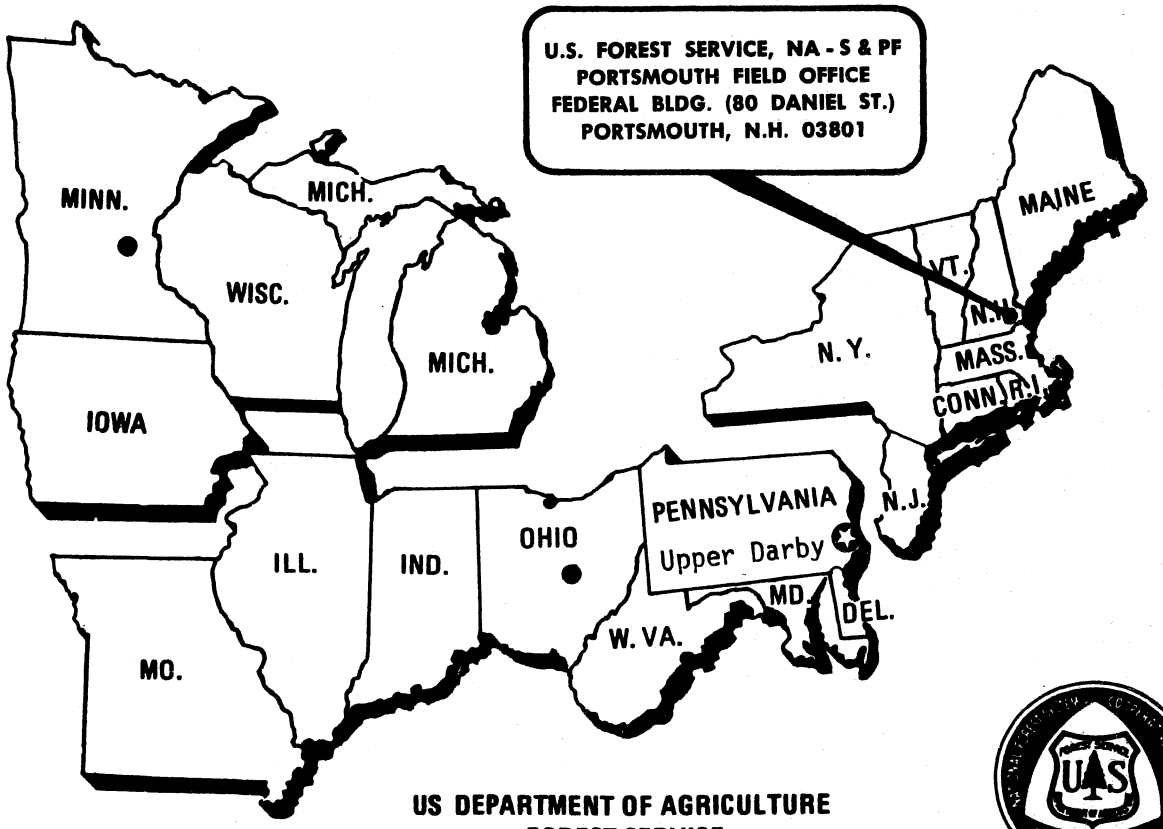
AERIAL AND GROUND DETECTION SURVEY OF THE WHITE MOUNTAIN NATIONAL FOREST

September 1972

by

Parker Snowden
Entomologist



US DEPARTMENT OF AGRICULTURE
FOREST SERVICE

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INTRODUCTION

On August 15-25, 1972 an Aerial and Ground Detection Survey was conducted on the White Mountain National Forest to assess the amount of defoliation and to discover any significant tree mortality caused by saddled prominent and gypsy moth defoliation. The survey was restricted to the southern portion of the Forest where significant defoliation has been observed since 1968.

Saddled prominent has been active on the Forest since the initial detection of this insect in 1967. This hardwood defoliator feeds predominantly on sugar maple and beech. It is also known to feed on oak, birch, ironwood, and other hardwoods when interspersed in an infested stand of the favored species. Crown deterioration and mortality of birch, especially white and yellow birch, has been observed throughout the Forest where the saddled prominent has been active.

Gypsy moth was also active on the Forest in 1969, 1970 and 1971. Oak, birch, poplar and other deciduous trees as well as pine and hemlock were moderately to heavily defoliated around Bald Hill and White Ledge Campground on the Forest, and Oak Hill, Salter Hill, Iona Lake and Tasker Hill, adjacent to the Forest boundary on state and private property (along Rt. 16) in Albany and Conway.

OBJECTIVES

1. To determine the extent of saddled prominent and gypsy moth defoliation on the White Mountain National Forest.

2. To locate severely defoliated trees, weakened or dead from saddled prominent defoliation for possible salvage.

3. To detect any new evidence of saddled prominent pupae and gypsy moth egg masses on the forest; to determine whether these insects will be a problem in 1973.

SURVEY METHODS

A 4-seater 160 H.P. Tri-pacer Piper Cub contracted by the Laconia Airport was used in the aerial survey. All flight operations originated from the airport.

Flight lines were flown north and south, spaced three miles apart at an altitude of approximately 1000-1500 feet above the terrain, except where it was necessary to fly higher over the peaks. This aerial survey was completed in two days (10½ hours flying time). Flight lines were drawn on USGS maps (15 minute series) 1/625,000.

Ground checks were conducted on August 21 through 25 by Parker Snowden and George Saufley both from the Portsmouth Field Office. All 18 areas were ground checked for severity, size, and economic value of the timber effected.

George Garneau and Walter Terhune, White Mountain National Forest, were navigators, Parker Snowden and George Saufley were observers, and Stephen Rhodes was the pilot.

RESULTS

1. Defoliation by the gypsy moth and saddled prominent has diminished to a point where it is no longer discernible from the air on the White Mountain National Forest.

2. Isolated dead birch trees were scattered throughout the Forest. Noticeable mortality of birch occurred on Mt. Mexico, White Ledge Campground vicinity and Robbins Ridge. In surveying approximately 5 acres of Robbins Ridge, five dead birch trees were found per acre.

Epicormic sprouting was observed on the lower and middle branches of many birch trees around White Ledge Campground, north and south slopes of Robbins Ridge, and Reservoir Trail off Bear Notch Road but birch mortality was not noticeable. (Experimental Forest Service Road, #44). (See map 2).

Twig mortality of white birch was prevalent throughout many areas with scattered mortality occurring around Russell Pond, Hurricane Mt., Mt. Mexico, White Ledge Campground, Robbins Ridge, Stinson Lake and Mountain Pond (See maps).

In random sampling of white birch leaves, various species of pests were found feeding in the lower and middle crown of the trees. These insects were leaf rollers

(Tortricid larvae) leaf tiers, birch leaf miners, Fenusa pusilla, Eriophyid mites, birch skeletonizers, and leaf galls, probably Eriophyes spp.

Birch trees which have had 3 or more consecutive years of saddled prominent defoliation are highly susceptible to attack by the bronze birch borer, Agrilus anxius. With the exception of the defoliators, the only insect noticed in earlier stages of birch dieback was the bronze birch borer. According to Hawboldt, et al., birch dieback is usually initiated without the presence of the borer, i.e., trees with ¼ of their crown dead were found to contain no borer galleries or short galleries of unsuccessful attacks. However, as the crown continues to deteriorate downward, trees will become more susceptible to successful attacks by this insect. Therefore, birch stands severely defoliated two or more years in succession may be susceptible to dieback because of crown deterioration.

On Three Ponds Trail (80 chains in from Stinson Lake Road), the upper and lower crowns of several white ash trees exhibited various degrees of dieback on trees of diameters 10 inches dbh probably ash dieback. (See map 1).

West of Mountain Pond, about a half mile above the parking area on East Branch Road #17, dead spruce and fir were scattered throughout the area. Spruce and fir which were growing on a very moist site accounts in part, for this high concentration of dead trees. This area will be checked again. On the south ridge of the pond, along the trails leading to the shelters and cabins, yellow and white birch mortality was generally scattered.

Defoliated sugar maple appears to be making a rapid comeback. Approximately 10% twig mortality was observed in the upper crowns of sugar maples.

Beech bark disease is common throughout the Forest. The bark of many trees was roughened and cratered from cankers and accompanying callus. On Reservoir Trail off Bear Notch Road, dead beech trees were prevalent throughout the area. These trees were dying from beech bark disease.

Dead spruce and fir were seen at higher elevations throughout the Forest. The cause of death is probably due to moisture stress, old age, and poor site. There was no evidence of fading trees to indicate the presence of bark beetles.

Balsam woolly aphids are killing fir in isolated areas. These trees now appear red from the air.

South-southwest slope of Ore Hill, as observed from the air, revealed upper crowns of many trees severely damaged by ice. (Verified by Pemigewasset District personnel).

An extensive blow-down area of spruce on the Southeastern slope of Sandwich Mountain was visible from the air. West of Stinson Mountain, one mile on the trail towards Stinson Mountain Fire Tower, noticeable dieback was observed in this area. Trees severely affected were yellow and white birch, red maple, white ash, and beech. According to the Pemigewasset District, this area is designated for TSI work.

3. Ground checks for gypsy moth activity failed to turn up any new egg masses on the Forest. Indications are that the gypsy moth population appears to be relatively low on the White Mountain National Forest.

No new saddled prominent pupae were discovered in random checks made throughout the Forest and no new infestations were found. It appears that the large populations of saddled prominent have undergone catastrophic collapse.

According to larval and pupal sampling data sheets, and aerial survey reports on file in Portsmouth Field Office, and information obtained through the assistance of the Division of Research Development, Department of Resource and Environmental Development, areas which supported three consecutive years of moderate to heavy infestations of saddled prominent defoliation are:

Hurricane Mountain Road - Kearsarge North Area
Mt. Whiteface, North to the Bowl
Mt. Mexico, Mt. Paugus, Mt. Wonalancet Area
Flat Mt., Young Mt., Mt. Isreal to Dinsmore Mt. Area
Stinson Mt. and West of Stinson Lakes
Mountain Pond - Mt. Shaw Area

Peared Hill - Robbins Ridge Area
Mt. Langdon - Iron Mt. Area
Bartlett Mt. - Kearsarge North
Humphrey Ledge, Cooks Crossing, Big and Little Attitash Mt. Areas
Young Mt., Mt. Isreal, Dinsmore Mt. Area
Bear Mt. and Bartlett Exp. Forest Area
Elbow Pond - Green Mountain Area
Wanosha Mt., Mill Rd. Area
Whiteledge, Bald Mt., Mt. Chocorua, Sugarloaf, Round-top and Hobbs Brook Area

RECOMMENDATIONS:

1. White Mountain National Forest personnel should continue to maintain surveillance for tree damage and tree mortality in those areas which were severely defoliated by saddled prominent and gypsy moth, and report any unusual mortality to the Portsmouth Field Office.

2. Portsmouth Field Office should again survey the White Mountain National Forest in 1973 to determine if any further tree damage and tree mortality has occurred that could be attributed to saddled prominent or gypsy moth defoliation.

REFERENCES CITED:

1. Hawboldt, L. S. 1947. Aspects of Yellow Birch Dieback in Nova Scotia. J. Forestry 45-414-422.

2. Nash, Robley W. and Edward Duda. 1951. Studies on extensive dying, regeneration, and management of birch. Maine Forest Service Bull. No. 15.